2 | IA 2 – Flood

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1 Purpose

■ The purpose of this annex is to provide a framework of coordination among agencies to help ensure the safety of life and property during a flood in Klamath County.

■ It defines roles, responsibilities, and organizational relationships of government and private agencies in response to a flood event.

2 Situation and Assumptions

2.1 Situation

Klamath County is subject to three types of flooding. River floods occur when there is gradual periodic overflow of rivers and streams. Flash flooding is defined as quickly rising small streams after heavy rain or rapid snowmelt. Urban flooding is defined as an overflow of storm sewer systems following heavy rain or rapid snowmelt.

In Klamath County, the Sprague River, Williamson River, and Lost River are the areas most likely to flood. The Klamath River is reasonably well controlled by dams of the Klamath Hydroelectric Project.

2.2 Assumptions

■ As urbanization continues, run-off from non-permeable surfaces will increase the amount of water directly entering the waterways and increase demands on the existing storm water systems.

● Localized flooding may occur due to failure of storm water systems to handle the demand.

● Culverts can restrict the flow of waterways.

— Restricted flow (plugged culverts) can increase the potential for flooding.

— Restricted flow can increase the accumulation of sediment in the waterway and/or back up water upstream from culverts, which could increase the size of flooded areas.

■ Flood Watches and Flood Warnings issued by the National Weather Service will provide enough notice of a potential flood event that some actions can be taken in advance of the flood to protect property, resources, and infrastructure.

■ All County equipment and personnel will be available to cope with any anticipated disaster.

■ Assistance through mutual aid agreements may be necessary.

■ Resource assistance may be necessary through local and private contractors.

■ Stabilization of emergency conditions must be met before restoration takes place.

3 Organization and Assignment of Responsibilities

3.1 General

In the event of a major incident, the Board of County Commissions (BOCC) should strongly consider implementing the Incident Command System and activating an Emergency Operations Center (EOC) through the County Emergency Manager.

3.2 Task Assignments

3.2.1 Public Works Department and Building Maintenance Departments

■ Participate in ICS structure.

■ Coordinate emergency public works and building maintenance activities.

■ Initiate mutual aid agreements, if necessary.

■ Identify local contractors who may provide backup support.

■ Review status and location of equipment, fuel, and sand and gravel for use during and after the flood.

   ● Ensure that all vehicles are refueled/topped-off.

   ● Verify all emergency generators have fuel and are operational.

   ● Establish the "do it yourself" sandbag site(s).

   ● Ensure that lighted barricades are operational and available, if needed.

■ Coordinate with Klamath County Emergency Management Agency, Sheriff, and Fire or Incident Command System (ICS) organization to identify any areas that may need to be evacuated.

■ Review arterial and collector roads likely to be affected.

- Develop alternate traffic routes and determine barricade and signage needs.

- Determine priorities for maintenance and clean-up of affected roadways.

■ Maintain debris removal from storm drains, bridge viaducts, main arterial routes, etc.

■ Maintain debris removal from public right of ways and in and around structures where public safety and/or health are endangered.

■ Assist utilities in essential emergency repairs.

■ Assist other public safety agencies in search and rescue, evacuation, site area security, and other pertinent response functions as time and manpower permit.

3.2.2 Sheriff

■ Participate in ICS organization.

■ Keep patrol units informed of the event.

■ Determine if additional resources will be needed to assist with road closures/detours, evacuations, security of evacuated areas, and search and rescue.

■ Coordinate other public safety agencies in search and rescue, evacuation, site area security, and other pertinent response functions, as time and manpower permit.

■ Coordinate mutual aid assistance in areas pertaining to law enforcement.

3.2.3 Emergency Manager

■ Participate in ICS organization.

■ Monitor weather forecasts, watches and warnings, and advisories and pass the information on to the County departments.

■ Facilitate/coordinate with Commissioners, County Attorney, Sheriff, Fire, and Public Works development of evacuation plan, if needed, for any projected affected areas.

■ Keep Oregon Emergency Response System (OERS) advised of actions being taken by the County.

3.2.4 Damage Assessment Group

The Damage Assessment Group is established by the Incident Commander (IC) and is part of the Planning Section. Its tasks are outlined below.

- Compile and maintain a file of reports of damage received by County Departments, the Fire Districts and the 911 Center, Law Enforcement organizations, and the American Red Cross.

- After floodwaters recede, coordinate follow-ups (calls or visits) on the reports of damage sustained to determine the extent of damage and how much was not covered by insurance.

- Conduct damage assessments using the state Incident Damage Assessment process. Compile damage estimates for possible emergency declaration purposes.

4 Concept of Operations

4.1 General

- Depending on the severity of flooding, response activities may be handled as part of day-to-day operations or may require activation of the County's EOC and/or establishing an ICS organization.

- Immediate actions should be centered on preserving life and property, as well as the continuation of existing services.

4.2 Communications

(also see ESF 2 – Communications)

4.2.1 Notification of Watches, Warnings and Advisories

- The National Weather Service (NWS) is the agency with primary responsibility for issuing watches, warnings, and advisory messages associated with floods.

  - Flood Watches and Warnings will be issued when rainfall and/or snowmelt will be enough to cause rivers to overflow their banks.

    – Flood Watch or Flood Forecast - Rainfall (or expected rainfall) is heavy enough to cause rivers to overflow their banks.

    – Flood Warning - Flooding is occurring or is likely to occur.

  - Advisories will also be issued by the NWS when forecasted rain intensities are heavy enough to cause street flooding.

● Watches and warnings will indicate the expected severity of flooding (minor, moderate, or major), the affected bodies of water, and the expected crest of flood waters (height and when it is expected to occur).

■ Watches and warnings are distributed to the public by the media (radio and TV) and are also available through computer web sites and the National Oceanic and Atmospheric Administration (NOAA) Weather Radio.

4.3　　Public Information

(Also see ESF 15 – External Affairs)

■ In addition to the watches and warnings issued by the NWS, press releases may be needed to tell the public what areas of the County are expected to be impacted and to provide them instructions for the appropriate actions to be taken

■ Special measures may be needed to reach areas of impact that may be without power and telephone service.

■ A volunteer call center should be established, especially during recovery, to help advise people regarding the appropriate course of action when returning to/cleaning up their flooded homes and businesses. The IC will be responsible for providing public information.

■ Publications on dealing with post disaster stress, cleaning up damaged homes, etc., are available through Klamath County Emergency Management Agency, the American Red Cross, and FEMA. Facilities around the county should be identified and publicized as distribution points for this information (Chamber of Commerce, Library, Senior Citizens Center, etc.).

4.4　　Response – All Departments or Emergency Operations Center

4.4.1　Flood Watch/Flood Forecast Issued

■ Monitor weather advisories and forecasts.

■ Prepare necessary resources (fuel vehicles and equipment, inventory signs, and barriers, etc.) and establish a permanent inventory.

4.4.2　Flood Warning Issued - Flooding has not started

■ Review work assignments/shift schedules.

■ Review floodplain information maps, based on FEMA's Flood Insurance Study. These maps are kept in the Klamath County Emergency Management Agency Office.

■ Initiate flood fight activities in areas expected to flood (sandbag threatened facilities, turn-off threatened utilities).

■ Pre-position resources in forecasted affected area (pumps, road barricades and signs, sandbags, sand piles).

■ Determine if any areas will need to be evacuated, and coordinate potential shelter needs with the American Red Cross.

■ Monitor weather forecasts and advisories.

4.4.3 Flood Warning In Effect - Flooding is occurring.

■ Activate the EOC/establish ICS structure.

■ Call in off-duty employees and volunteers as needed to staff the EOC and/or overhead team.

■ Clear roads and blocked catch basins where possible. Erect barricades and establish detour routes around flooded areas.

■ Make emergency repairs of water and sewer systems, traffic signals, and streetlights.

■ Conduct preliminary Initial Damage Assessments.

■ Initiate sandbagging/flood-fighting activities if feasible.

■ Evacuate population at risk and establish security for evacuated areas.

■ Open evacuation assembly areas and shelters, in cooperation with the American Red Cross.

■ Organize and implement search and rescue operations, as needed.

■ Conduct initial damage assessment, and maintain a list of damages to private and public property.

■ Call out private contractors, as needed.

■ Issue press releases with public safety information.

■ BOCC makes a declaration of a "Local Emergency" if circumstances so dictate.

4.5   Evacuation

(see ESF 1 – Transportation)

4.6   Sanitation and Health

■ Contamination of potable water supplies and the disruption of sanitary services are major concerns during flood events. Alternate sources for both need to be considered prior to the arrival of floodwaters.

■ Often floods cause the deaths of numerous domestic animals and some wildlife. Means of disposing of the carcasses need to be developed and implemented.

■ County Health will be responsible for providing public information related to public health issues to the IC and may be asked by the IC to implement a type of public immunization program.

4.7   Recovery

■ Conduct a thorough damage assessment. The BOCC issues a Disaster Declaration if circumstances so dictate.

■ Evaluate the conditions of evacuated areas and determine if/when they are safe enough for residents to return.

■ Repair damages (roadways, sanitary sewers/storm drain systems, public facilities, traffic signals, street lights).

■ Participate in after-action evaluations. Make necessary changes in plans and procedures.

■ Develop a final cost analysis of all response and recovery activities.

■ Request disaster assistance as appropriate.

4.8   Debris Removal

■ Removal of flood-deposited debris from County roads and County facilities is the responsibility of the Public Works Department.

■ Removal of debris from private property is the responsibility of the property owner.

■ Temporary collection sites may need to be established, pending determination of the final disposal location.

■ Debris reduction sites may be established to allow for recyclable materials to be extracted and wood and vegetation to be ground into mulch, reducing the overall amount of material needing to be transported to landfills.

5   Direction and Control

- Routine operations will be handled by individual departmental standard operating procedures (SOPs).

- Depending on the severity of flooding, response activities may be handled as part of day-to-day activities or may require activation of the County's EOC and/or an ICS structure.

- Activation of the EOC may require Department Heads to release staff as required to staff the EOC or other emergency functions.

6   Appendices

- Appendix A – Flood Incident Checklist

Appendix A – Flood Incident Checklist

Phase of Activity	Action Items	Supplemental Information
PRE-INCIDENT PHASE	❑ Arrange for personnel to participate in necessary training and develop exercises relative to flood events.	
	❑ Coordinate County preparedness activities, seeking understanding of interactions with participating agencies in flooding scenarios.	
	❑ Ensure that emergency contact lists are updated and establish a pre-event duty roster allowing for 24/7 operational support to the EOC.	
	❑ Contact supporting emergency response agencies to review and determine if major developments have arisen that could adversely affect response operations (e.g., personnel shortages, loss of equipment, etc.).	
	❑ Annually review and update EOP and SOPs, as needed.	*County EOP and agency-specific SOPs*
	❑ Review flood prone areas.	
	❑ Familiarize staff with requirements for requesting State and Federal Disaster Assistance.	*Stafford Act, FEMA guidance, and Oregon EOP*
	❑ Ensure that supplies, such as communications devices and sandbags, are prepared and ready for use. This includes primary and alternate communications and warning systems.	*FA 1 of the County EOP*
	❑ Identify and review local contractor lists to see who may provide support specific to flood response.	
	❑ Review, revise, and, where necessary, establish mutual aid agreements with other agencies and private contractors relative to multiple agency response to floods.	*Mutual Aid Agreements are noted in Appendix A of the County EOP*
RESPONSE PHASE	❑ The IC will provide overall guidance for the deployment of resources.	
	❑ Activate mutual aid agreements.	*Mutual Aid Agreements are noted in Appendix A of the County EOP*
	❑ If the situation warrants, request activation of the County EOC via the IC through the Emergency Manager.	
	❑ Implement appropriate staffing plans. Contact appropriate private partners to assign liaisons to the EOC for coordinating specific response activities.	*County Basic Plan, agency and company-specific plans*
	❑ Estimate emergency staffing levels and request personnel support, including specialized staff such as engineers, building inspectors, heavy equipment operators, and/or environmental remediation contractors.	
	❑ Develop and initiate shift rotation plans, including briefing of replacements during shift changes.	
	❑ Submit request for disaster/emergency declaration, as applicable.	*Appendix A of Emergency Operations*

Phase of Activity	Action Items	Supplemental Information
		Plan
	❑ Coordinate the evacuation of the affected area, if necessary.	
	❑ Support Search and Rescue operations by coordinating resource requests outside of the jurisdiction.	
	❑ Request American Red Cross to activate sheltering plans and open/staff shelters, if needed.	*American Red Cross Shelter Plans*
	❑ Establish a JIC. Formulate emergency public information messages and media responses using "one voice, one message" concepts.	
	❑ Record all EOC activities, completion of personnel tasks, incoming and outgoing messages. These should be documented in EOC logbooks.	*Existing ICS and EOC forms*
	❑ Begin damage assessments in coordination with the Public Works Department and County/local government.	
	❑ Assist with the coordination of Public Works activities, such as debris removal from: ▪ Storm Drains ▪ Bridge viaducts ▪ Main arterial routes ▪ Public right-of-ways ▪ Dams (via established liaisons at the County EOC) ▪ Other structures, as needed	
	❑ Contact local contractors for support, if necessary. Establish contact with private sector partners and/or dam operators (if the flood is associated with dam failure or malfunction).	*Existing contact lists at EOC*
	❑ Coordinate with County Sheriff's Office and other local police to provide law enforcement to affected areas (curfew enforcement, road closures, security, etc.).	
	❑ Collect and chronologically file records and bills generated during the incident in order to ensure timely submittal of documents for reimbursement.	
RECOVERY PHASE	❑ Monitor secondary hazards associated with floods (landslides, contamination, damage to bridges/roads, impacts to utility lines/facilities) and maintain on-call personnel to support potential response to these types of hazards.	
	❑ Deactivate/demobilize the EOC. Deactivate mutual aid resources as soon as possible.	
	❑ Activate and implement applicable mitigation plans, community recovery procedures, and continuity of operations/government plans until normal daily operations can be completely restored.	*ESF 15 – Long-Term Community Recovery Annex and Agency-Specific Recovery Plans*
	❑ Implement revisions to the EOP and supporting documents based on lessons learned and best practices adopted during response.	

Phase of Activity	Action Items	Supplemental Information
	❑ Offer recommendations to County government and Public Works departments for changes in planning, zoning, and building code ordinances.	
	❑ Participate in After Action Reports and critiques. Submit valuable success stories and/or lessons learned to the Lessons Learned Information Sharing website (www.llis.gov).	

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